Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

**Preliminary Results of ICRH on the RT-1 Magnetospheric Device** YOSHIHISA YANO, HARUHIKO SAITOH, ZENSHO YOSHIDA, JUNJI MORIKAWA, Graduate School of Frontier Sciences, Univ. of Tokyo, ATSUSHI FUKUYAMA, Department of Nuclear Engineering, Kyoto Univ. — The Ring Trap-1 device, which uses a levitating super-conducting magnet, has already achieved a stable confinement of high-beta plasma ($\beta_{local} > 0.7$) by using ECRH(Electron Cyclotron Resonance Heating). Now we are aiming to heat ions by the use of ICRH(Ion Cyclotron Resonance Heating) as a next phase of the RT-1 experiment. In the dipole configuration, the magnetic field strength (0.01 - 0.5 T) and the plasma density ($n_e \sim 10^{17} m^{-3}$) are lower than in other plasma confinement devices. These features of the dipole plasma may generally result in low plasma loading impedance. Therefore we experimentally examined the loading impedance by the resonance method. In the experiment, a test antenna ($\phi$260 - 300, 3 turns) was installed around the RT-1 center-stack ($\phi$180). The RF frequency was 1 - 3 MHz and the RF input power was less than 200 mW. The observed loading impedance became higher when the RF frequency and the plasma density were increased. The maximum observed impedance was 17 Ω at 3 MHz and 0.6 Ω at 1 MHz. These dependences on the RF frequency and the plasma density agree with the preliminary calculation results. The detailed comparison between experiment and calculation will be presented.

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Date submitted: 15 Jul 2011 Electronic form version 1.4